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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## DESCRIPTION

Demonstration circuit 1067 features the LTC2450, a 16 bit high performance  $\Delta\Sigma$  analog-to-digital converter (ADC). The LTC2450 features 2LSB linearity, 2LSB offset, and 1.4 $\mu$ V RMS noise. The input is single ended with a range of 0 (Ground) to Vcc. The modulator's proprietary sampling technique reduces the average input current to less than 50nA – orders of magnitude lower than typical delta sigma ADCs. The LTC2450 is available in a 6 pin, 3x3mm DFN package and has an easy to use SPI interface.

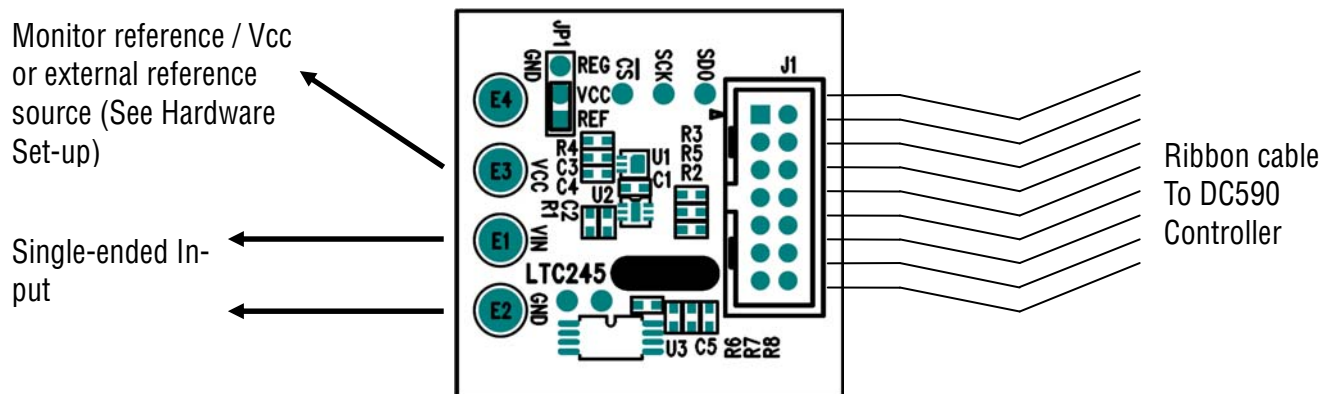
DC1067 is a member of Linear Technology's QuickEval™ family of demonstration boards. It is designed to allow easy evaluation of the LTC2450 and may be connected directly to the target application's

analog signals while using the DC590 USB Serial Controller board and supplied software to measure performance. The exposed ground planes allow proper grounding to prototype circuitry. After evaluating with Linear Technology's software, the digital signals can be connected to the end application's processor / controller for development of the serial interface.

**Design files for this circuit board are available. Call the LTC factory.**

LTC is a trademark of Linear Technology Corporation

Figure 1. Proper Measurement Equipment Setup





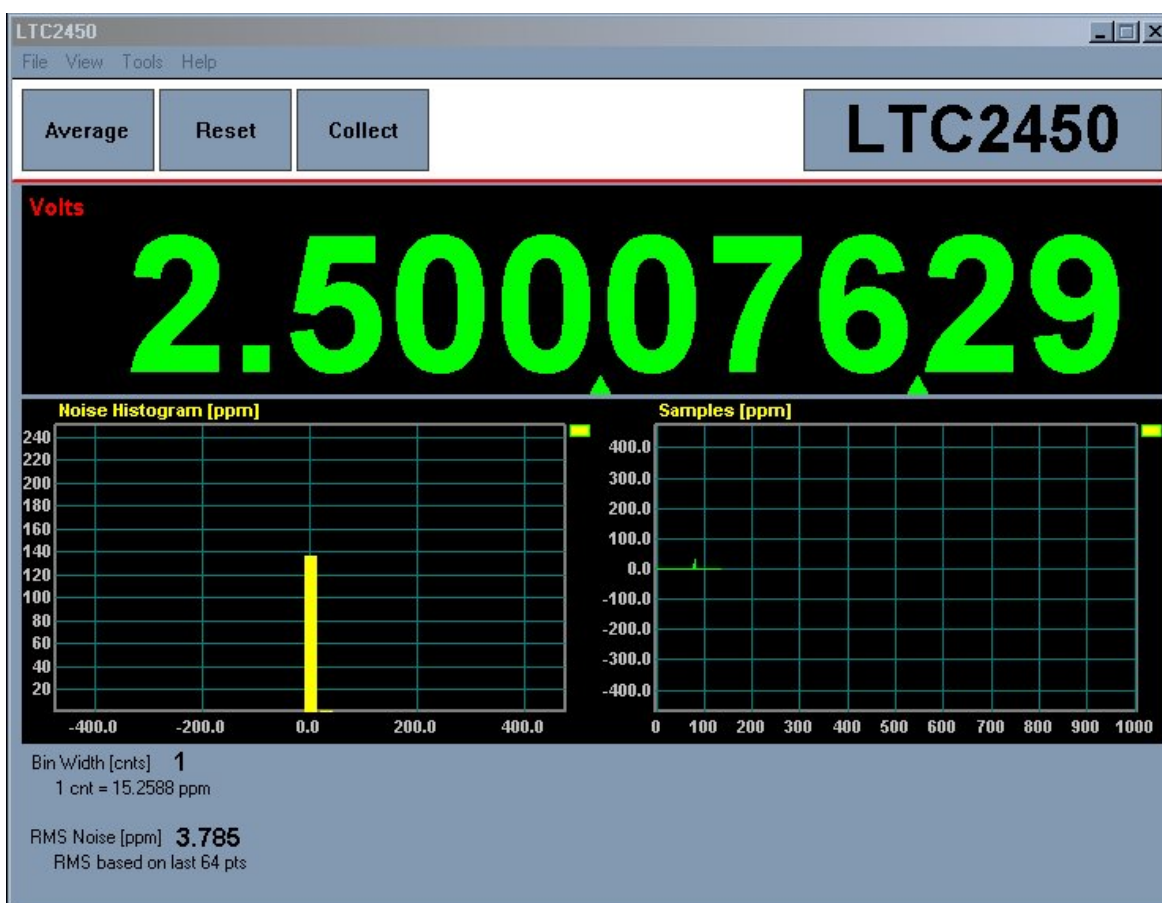
## QUICK START PROCEDURE

Connect DC1067 to a DC590 USB Serial Controller using the supplied 14 conductor ribbon cable. Connect DC590 to host PC with a standard USB A/B cable. Run the evaluation software supplied with DC590 or downloaded from <http://www.linear.com/software>. The correct program will be loaded automatically. Click the COLLECT button to start reading the input

voltage. Details on software features are documented in the control panel's help menu.

Tools are available for logging data, changing reference voltage, changing the number of points in the strip chart and histogram, and changing the number of points averaged for the DVM display.

Figure 2. Software Screenshot



## HARDWARE SET-UP

### CONNECTION TO DC590 SERIAL CONTROLLER

J1 is the power and digital interface connector. Connect to DC590 serial controller with supplied 14 conductor ribbon cable.

### JUMPERS

JP1 – Select the source for REF+, either an LT6660-5 or the regulated VCC voltage from the DC590 controller. Removing this jumper allows an external supply to be connected to the VCC turret post.

### ANALOG CONNECTIONS

Analog signal connections are made via the row of turret posts along the edge of the board. Also, when

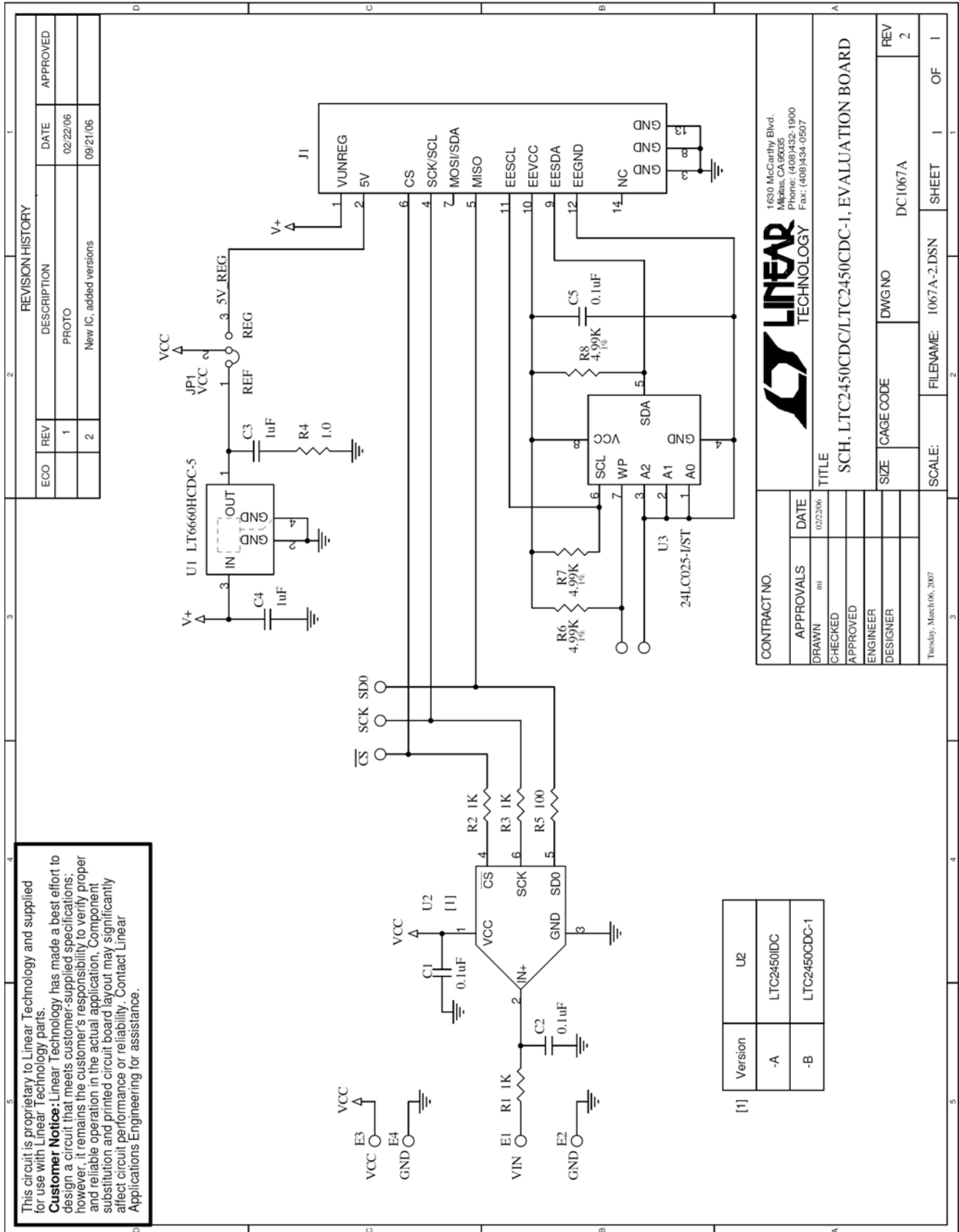
connecting the board to an existing circuit the exposed ground planes along the edges of the board may be used to form a solid connection between grounds.

GND – Two ground turrets are connected directly to the internal ground planes.

VCC – This is the supply and reference voltage for the ADC. Do not draw any power from this point.

VIN – This is the single-ended input to the ADC.

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1067 EVALUATION BOARD



This circuit is proprietary to Linear Technology and supplied for use with Linear Technology parts.  
**Customer Notice:** Linear Technology has made a best effort to design a circuit that meets customer-supplied specifications; however, it remains the customer's responsibility to verify proper and reliable operation in the actual application. Component substitution and printed circuit board layout may significantly affect circuit performance or reliability. Contact Linear Applications Engineering for assistance.

Version	U2
-A	LTC2450IDC
-B	LTC2450CDC-1

1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)432-1900 Fax: (408)434-0507	
CONTRACT NO.	
APPROVALS	DATE
DRAWN	02/22/06
CHECKED	
APPROVED	
ENGINEER	
DESIGNER	
TITLE SCH. LTC2450CDC/LTC2450CDC-1, EVALUATION BOARD	
SIZE	DWGNO
	DC1067A
SCALE:	REV
1067 A-2.DSN	2
SHEET	OF
1	1